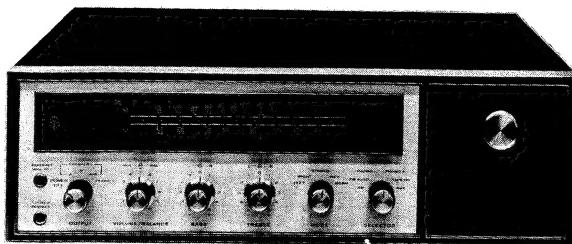
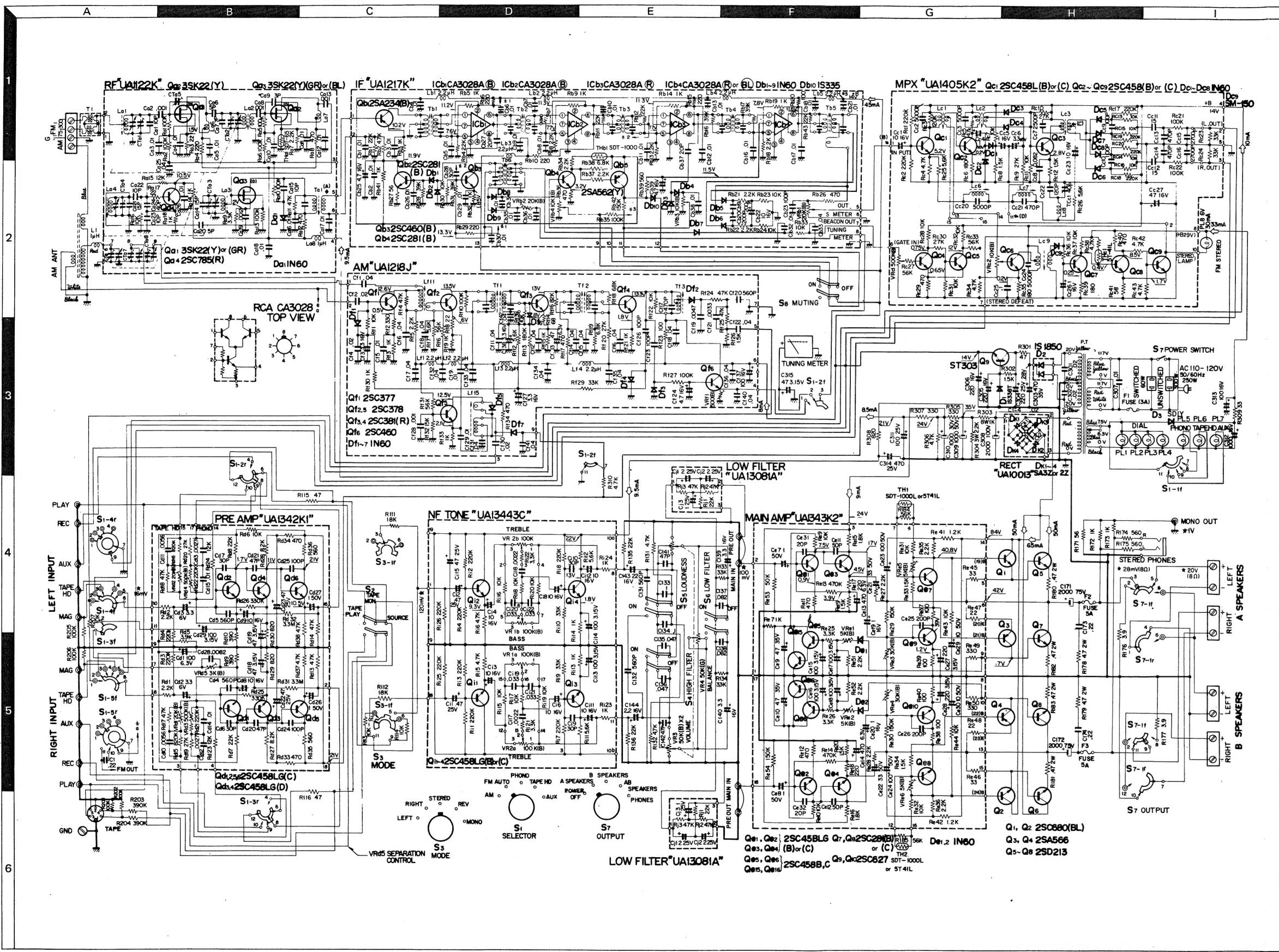


**KENWOOD**

# SOLID STATE AM-FM STEREO RECEIVER

**TK-140X**



## SPECIFICATIONS

### AMPLIFIER SECTION

OUTPUT POWER:  
250 watts  $\pm 1$ dB at 4 ohms  
210 watts  $\pm 1$ dB at 8 ohms  
200 watts at 4 ohms  
170 watts at 8 ohms

### CONTINUOUS POWER:

EACH CHANNEL DRIVEN: 80 watts/80 watts at 4 ohms  
60 watts/60 watts at 8 ohms  
BOTH CHANNELS DRIVEN: 53 watts/53 watts at 8 ohms

### DISTORTION:

HARMONIC DISTORTION: Less than .5% at rated output  
INTERMODULATION DISTORTION: Less than .5% at rated output

Less than .2% at -3dB rated output

### FREQUENCY RESPONSE:

MAIN INPUT: 8 Hz to 120,000 Hz  $\pm 1.5$  dB

AUX INPUT: 20 Hz to 30,000 Hz  $\pm 1.5$  dB

POWER BANDWIDTH (IHF): 15 Hz to 30,000 Hz

CHANNEL SEPARATION: Better than 50 dB

### INPUT SENSITIVITY & INPUT IMPEDANCE:

(For rated output):  
MAG 1.2...2mV (50K ohms)  
TAPE HD...2.2mV (100K ohms)  
AUX...160 mV (100K ohms)  
TAPE PLAY...Pin Jack 160mV (100K ohms)  
(R.P. Connector) 160mV (100K ohms)

MAIN IN...100 mV (100K ohms)

(Pin Jack) 160 mV

(Dubbing) 160 mV

(R.P. Connector) 32 mV

180 mV (P-P 1,000 Hz)

### RECORDING OUTPUT:

MAXIMUM INPUT SIGNAL:

(at MAG Input)

HUM AND NOISE:

(Below rated output)

PHONO 1.2 (MAG) 65 dB.

TAPE HD 63 dB

AUX 75 dB

TAPE PLAY 75 dB

Noise at minimum volume control... Less than 1.5 mV at 8 ohms or .28 micro watts (83 dB)

28 at 8 ohms

(output impedance of speaker is .286 ohms.)

4.8 and 16 ohms

$\pm 10$  dB at 100 Hz

$\pm 10$  dB at 10,000 Hz

3,000 Hz Cutoff

200 Hz Cutoff

+10 dB at 100 Hz, +5 dB at 10 kHz (at -30 dB)

Power Off, A speakers, B speakers, A-B

speakers and Phones

Left, Right, Stereo, Rev. & Mono

AM, FM, PHONO, TAPE HD & AUX

Loudness, Tape Monitor, Muting, Low

Filter and High Filter

2 pairs of stereo speaker terminals, Center

channel output (low level), Pre-amp. output,

Tape recording output, Head phone jack, AC

outlet.

### DAMPING FACTOR:

SPEAKER IMPEDANCE:

BASS CONTROL:

TREBLE CONTROL:

HIGH FILTER:

LOW FILTER:

LOUDNESS CONTROL:

OUTPUT SWITCH:

MODE SWITCH:

SELECTOR SWITCH:

KEYBOARD TYPE SWITCHES:

OUTPUTS:

### TUNER SECTION

FM:

ANTENNA IMPEDANCE: 300 ohms balanced 75 ohms unbalanced

SENSE (IHF): 1.7 V

HARMONIC DISTORTION: Less than .5% 400 Hz 100% Mod.

SIGNAL TO NOISE RATIO: Better than 65 dB

CAPTURE RATIO: 1.0 dB

IMAGE REJECTION: Better than 100 dB

HARMONIC SPURIOUS RESPONSE: Better than 100 dB

IF REJECTION: Better than 100 dB

SELECTIVITY (Alt. channel): 45 dB

FM STAGE: 4 IC's (Integrated Circuits)

FM FRONT-END: 3 FET's, 4 gang tuning condenser

INTER STATION MUTING: Keyboard switch

AM:

SENSITIVITY (IHF): 15.4V at 1,000 kHz

IMAGE REJECTION: 90 dB at 1,000 kHz

SELECTIVITY: Better than 25 dB

### SPECIAL FEATURES:

IC's & Mechanical Filter IF Circuit, 3 FET's 4 Gang Tuning Condenser Super Sensitive Front-End Inter Station Muting Circuit, Heavy Fly-Wheel Tuning Dial, New Large Tuning Dial, New Large Tuning Meter, 300 ohms and 75 ohms Antenna Inputs, Unique Keyboard Type Control Switches, Power Transistor Protection Circuit Separate Pre-amp, Output and Main amp. Input, Illuminated Smoked Glass Dial, Low Filter and High Filter, Tape Monitor, Stereo Phone Jack, 2 Set of Speaker Systems, Dubbing Tape Recording Jack On Front Panel.

SEMICONDUCTORS:

4 IC's, 3 FET's 44 Transistors, 33 Diodes, 2 Thermisters.

POWER CONSUMPTION:

250 watts at full power.

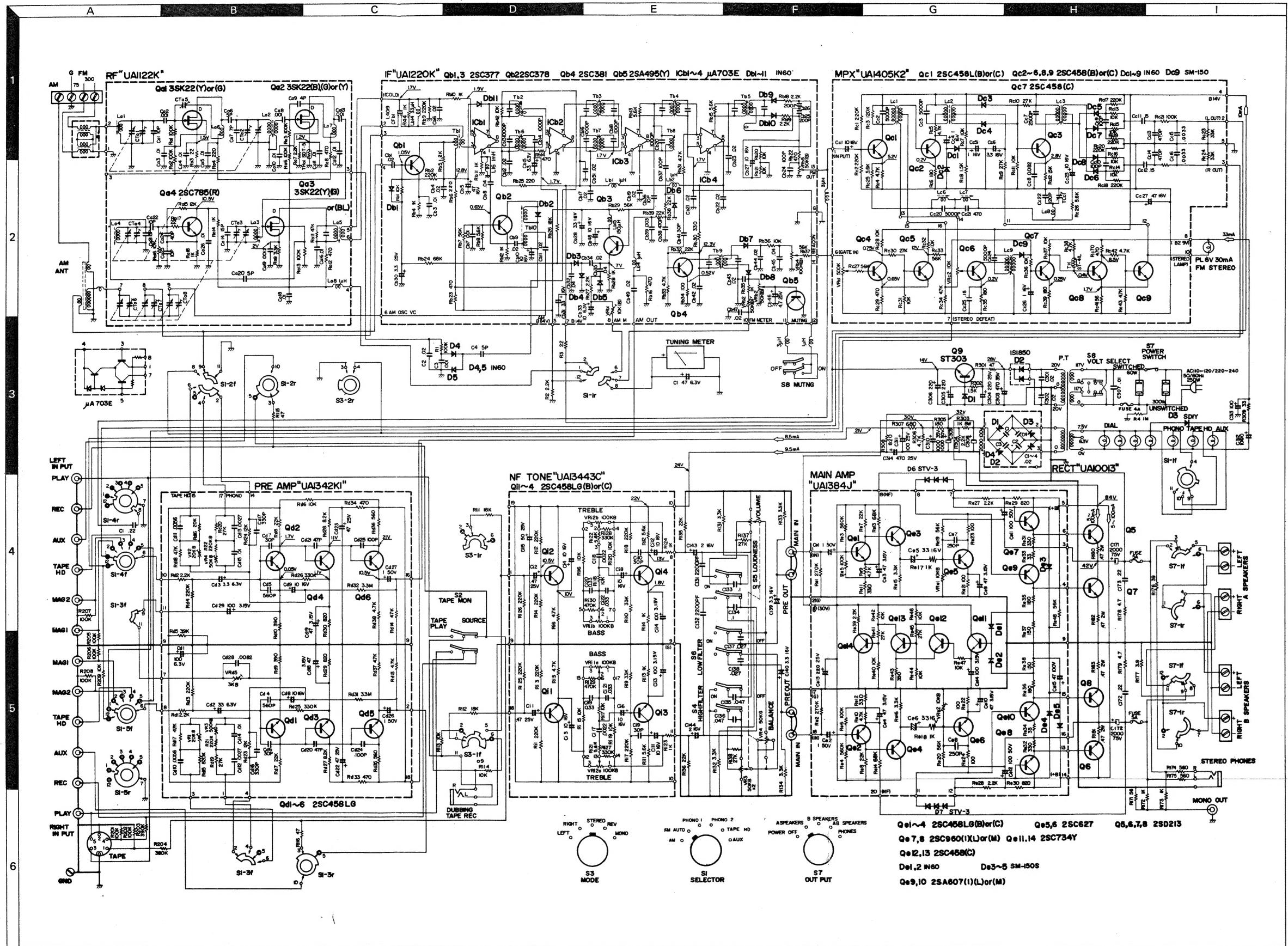
34 watts at no signal.

DIMENSIONS:

16 1/2" W, 5 1/2" H, 12 1/2" D.

28.5 Lbs Net weight

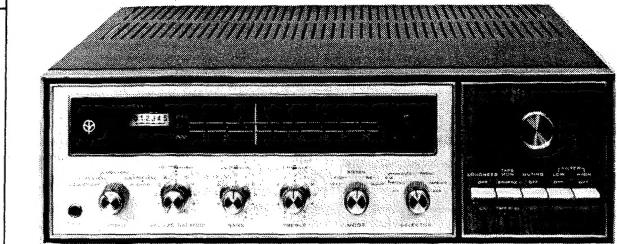
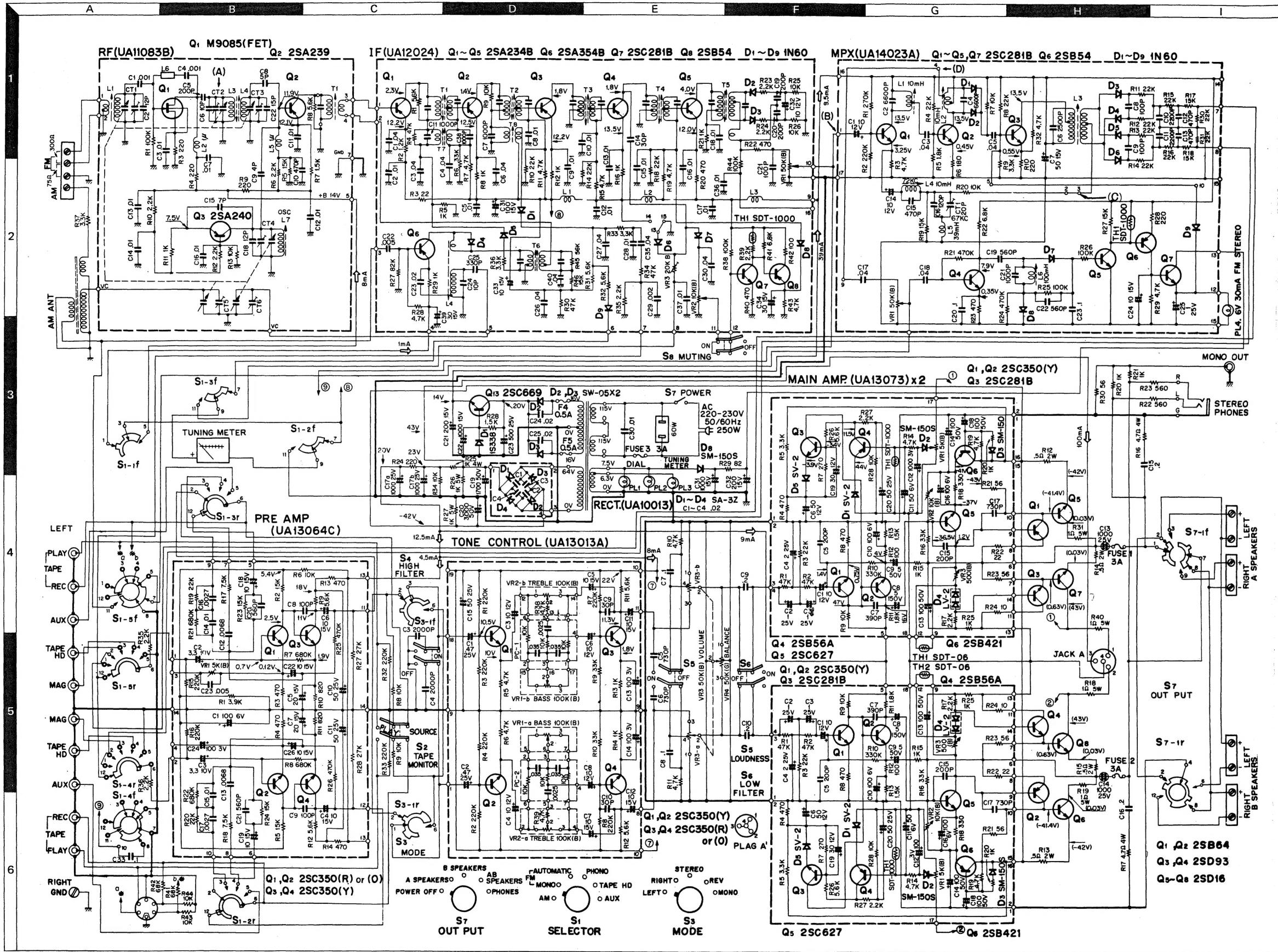
33.0 Lbs Shipping weight



**KENWOOD**

# SOLID STATE AUTOMATIC AM-FM STEREO RECEIVER

**TK-140**



## SPECIFICATIONS

### AMPLIFIER SECTION:

TOTAL MUSIC POWER:

130 watts (IHF Standard 4 ohms)

120 watts (IHF Standard 8 ohms)

CONTINUOUS POWER:

50 watts per channel (0.5% T.H.D.)

FREQUENCY RESPONSE:

20 Hz - 50,000 Hz (-2 dB)

POWER BANDWIDTH:

20 Hz - 30,000 Hz (-3 dB)

SIGNAL TO NOISE RATIO:

Phono - 63 dB, Tape HD - 63 dB,

Tape Play 150 mV, AUX 150 mV

Phono 2 mV, Tape HD 2.5 mV,

Tape Play 150 mV, AUX 150 mV

100 mV P-P (1,000 Hz)

INPUT SENSITIVITY:

46 (16 ohms), 23 (8 ohms)

MAXIMUM INPUT SIGNAL:

(Mag Input)

DAMPING FACTOR:

80 Hz roll-off

LOW FILTER:

6,000 Hz roll-off

HIGH FILTER:

±10 dB (at 50 Hz)

BASS CONTROL:

±10 dB (at 10,000 Hz)

TREBLE CONTROL:

VOLUME CONTROL TRACKING ERROR:

Within 3 dB

CENTER CHANNEL OUTPUT:

Yes

4, 8 or 16 ohms

SPEAKER IMPEDANCE:

TUNER SECTION:

USABLE SENSITIVITY:

FM: 2 microvolts (IHF Standard)

AM: 10 microvolts (IHF Standard)

20 - 20,000 Hz = 2 dB

0.6% (1,000 Hz 100% mod.)

60 dB

FM HARMONIC DISTORTION:

2.5 dB

FM SIGNAL TO NOISE RATIO:

45 dB

FM CAPTURE RATIO:

38 dB (at 400 Hz)

FM SELECTIVITY:

66 dB

(Alt. Channel)

FM STEREO SEPARATION:

80 dB

FM IMAGE REJECTION:

5 stages

FM SPURIOUS RESPONSE:

Yes

FM IF STAGES:

FM STEREO MONO AUTO. SWITCHING:

Yes

AM-FM FRONT END:

Yes

POWER CONSUMPTION:

AC 110 - 120 or 220 - 230 volts, 250 watts

(at full power)

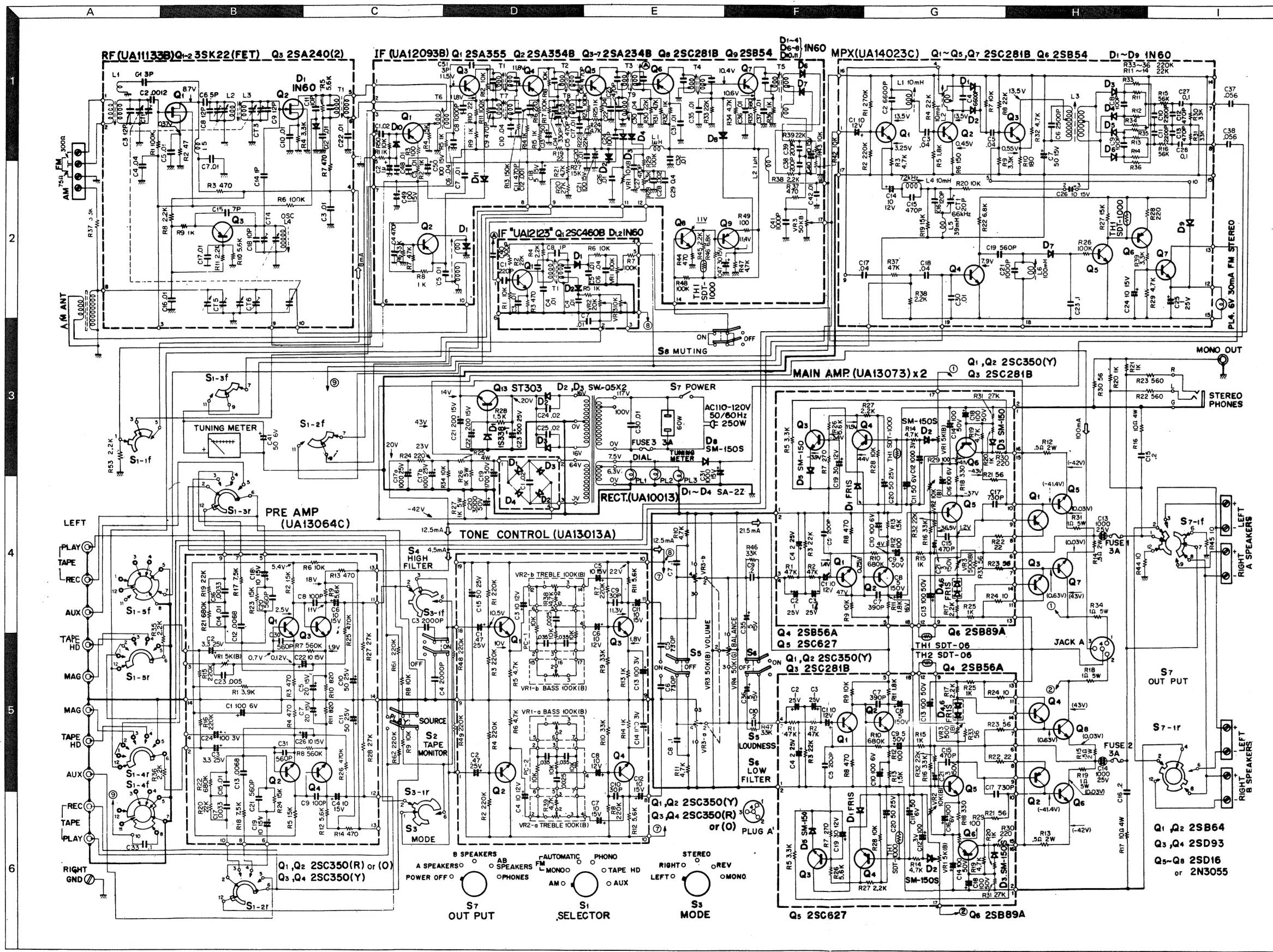
Amps sold in Europe operate only on 220 - 230

volts 50/60 Hz

16½" W, 5⅔" H, 14⅔" D

WEIGHT:

31 Lbs.



# TUNER ADJUSTMENT



## Ex. 1. One PCB ass'y

Refer to the KT-2001's schematic diagram. (X05-0006-11)

NO.	ALIGN	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
<b>FM SECTION</b>							
1	IF	Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM & scope to REC jack	Ta3, 5~7	Maximum deflection
2		—	—	—	T meter	Ta8 (primary)	Make the pointer position in the center of the meter
3		Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Ta8 (secondary)	Maximum deflection and minimum distortion
4	OUTPUT	ditto	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (Input)	95 MHz	ditto	VRa2	Output voltage is 1V*
5	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Ta1~4	Maximum deflection
6			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTa1~3	
7	SCA	AG to (B)	67 kHz	Non-station	SSVM & scope to (C)	Ta15	Minimum deflection
8	19 kHz 38 kHz	Ⓑ and ⓒ	98 MHz 1 kHz (Mod) 68.25 kHz (Dev) Phase : Reverse 60 dB (Input)	95 MHz	SSVM & scope to REC jack (L)	Ta13, 14	Maximum deflection
9	SEPARATION	ditto	95 MHz 67.5 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input) L or R (SELECTOR)	95 MHz	ditto	VRm1	Minimum deflection
10	BEACON	ditto	95 MHz 40 kHz (Dev.) 1 kHz (Mod.) 60 dB (Input)	95 MHz	Stereo Indicator	VRa4, 5	Indicator lights
11	DISTORTION	ditto	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	95 MHz	SSVM, scope & distortion meter to REC jack (L)	Ta3, 5~7	Minimum distortion
<b>AM SECTION</b>							
1	IF	Ⓑ and ⓒ	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	Ta10~12	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Ta9 Bar antenna	ditto
3			1400 kHz 400 Hz, 30% (Mod)	1400 kHz		CTa4, 5	
4	S METER	ditto	1000 kHz (400 Hz, 30% Mod.)	1000 kHz	S meter	VRa3	The meter deflection at 4.5

\* Some products don't have the output-level adjusting potentiometer.

## Ex. 2. more 2 pieces of PCB ass'y

Refer to KT-5000's schematic diagram. (X01-0025-11, X02-0020-11 and X04-0003-13).

NO.	ALIGNMENT	TEST EQUIPMENTS		TUNER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS	
		CONNECTION	SETTING					
<b>FM SECTION</b>								
1	IF	Ⓐ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	Ⓑ	Ta1, LB2, 3, 5	Maximum deflection	
2	T METER	—	—	—	T meter	Lb8 (Bottom)	Make the pointer position in the center of the meter	
3	DISCRIMINATOR	Ⓐ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	Ⓑ	Lb8 (Top)	Maximum deflection and minimum distortion	
4	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	La1~4	Maximum deflection	
5		ditto	108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz	ditto	CTa1~5	ditto	
6	OUTPUT	ditto	85 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	85 MHz	ditto	VRb1	Output is 1V.	
7	S METER	ditto	ditto	ditto	S meter	Lb7 VRb2	The meter deflection 4.5.	
8	SCA	Ⓒ	Connect the base of Qb6 to GND through 470 pF and AG to #1 of MPX (X04-0010-10)	AG 67 kHz (f) 0.5V (Output)	—	Connect the oscilloscope and VTVM to the secondary center of L3	Lc3	Minimum deflection
9	BEACON (SUB)			95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L + R	95 MHz	Stereo indicator	VRc1	Indicator lights
10	SUB CARRIER	ditto	95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L - R	ditto	Ⓑ	Lc1, 4	Maximum deflection	
11	BEACON (19 kHz)	ditto	95 MHz (60 dB) 40 kHz (Dev) 1 kHz (Mod) L - R	ditto	Stereo indicator	VRc1	At the point of becoming light on	
12	BEACON (INPUT)	ditto	95 MHz (16.3 dB) 68.25 kHz (Dev) 1 kHz (Mod) L - R	ditto	ditto	VRb4	ditto	
13	SEPARATION	ditto	95 MHz (60 dB) 68.25 kHz (Dev) 1 kHz (Mod) L or R	ditto	Ⓑ	VRm1	Minimum deflection	
14	MUTING	Ⓐ	95 MHz (60 dB) 75 kHz (Mod) 1 kHz (Mod)	ditto MUTING: ON	ditto	VRb3	Under the antenna input level is 9.5 dB output level becomes 40 dB lower	

When adjusting AM circuit, refer to AM SECTION in EX.1.

\* Each model has its own value, refer to the service manual.